ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY

Thank you for your interest in our request for data for our "Residential Diagnostics Database". We are interested in collecting leakage measurements (building envelope, ducts, etc.) of new single-family detached houses. We are particularly interested in measurements taken within a year of construction. (As always, data for other houses is welcome and can be used in our other leakage database.) We are now asking that you send us any data that you have.

The Purpose of This Study: This study is being conducted on behalf of the U.S. Department of Energy. Like previous studies we have conducted, this study will look at national trends in the air-tightness and energy efficiency of new houses. Please see our web-site [epb.lbl.gov] for references to previous reports written by Max Sherman and Nance Matson on this subject.

Data Variables: I have enclosed a "laundry list" of the types of data we are interested in, including house characteristics, envelope leakage, duct leakage, and HVAC system characteristics. Please note that this list attempts to reflect the different ways of expressing leakage values and the various types of building-related characteristics that may be included in a given data set. We recognize that your data set won't include all of this information and may include additional information. Please send us everything you have (e.g., your complete data sets). We will extract what we need from your data.

Test Descriptions and Conditions: As there are often subtle differences in how each organization conducts their envelope and duct leakage measurements, we would like you to briefly describe how you did your tests. If your tests follow standard protocols, please indicate which protocols. Otherwise please send us a copy of your protocol, including test conditions (see the "laundry list" - dampers sealed, vents sealed, door positions, etc.) This will help us compare results from different data sources.

Raw and "Finished" Data: Please note that we are interested in both raw and "finished" data. Please send us data in both formats if available.

File Format: We are compiling the database using Microsoft Excel and Access and are able to convert from most other file formats (dBase, Quattro, text files, statistical program data files, etc.). Please send us your files in whatever electronic format is easiest for you.

Confidentiality: To ensure confidentiality of data, individual houses will not be identified.

Send Data to: Nance Matson, MS 90-3074, LBNL, Berkeley, CA 94720; nematson@lbl.gov.

Please let me know if you have any questions. I am looking forward to reviewing your data.

Thank you for your participation.

Nance Matson, P.E.

Nance Matson - MS 90-3074 - LBNL - Berkeley, CA 94720 - nematson@lbl.gov - (510) 486-7328

LBNL Residential Diagnostics Database

Send Your Data To:

Nance Matson
MS 90-3074
LBNL
Berkeley, CA 94720
nematson@lbl.gov
(510) 486-7328

Data Format

Send us your data files in whatever electronic format they are in.
Text, Microsoft Excel, or database formats [Microsoft Access, etc.] are preferred.
We can convert from most any other file format.

Types of Measurements Needed

- Envelope and duct leakage measurements of new single-family detached dwellings.
- Measurements taken within one year of construction.
- Data for other houses welcome (we can sort for the new houses)
- Raw data and/or "finished" data.

Types of Data Requested

- Test descriptions and conditions
- House characteristics
- Envelope leakage characteristics
- Duct leakage characteristics

The following lists include the types of data we are looking for. We recognize that your data set won't necessarily include all of the information listed below and may include additional information. Send us your complete data sets - we will extract what data we need.

Test Descriptions and Conditions:

- Envelope leakage measurements:
  - Name of standard protocol followed
  - If not a standard protocol, description of how the tests were performed
  - Test conditions
    - Pressurization or depressurization?
    - Ducts sealed?
    - Kitchen exhaust sealed?
    - Bathroom exhausts sealed?
    - Fireplace dampers sealed?
    - Dryer vents sealed?
    - Air-to-air heat exchangers sealed?
    - Window air-conditioners sealed?
    - Plumbing traps filled?
    - Door Positions (open / shut) to unconditioned spaces (garages, basements, etc.)?
    - Envelope pressure averaging used? (4-wall average, other strategies?)

    - Other test conditions?
    - Data corrected for elevation and temperature?
- Duct leakage measurements:
    - Name of standard protocol followed
    - If not a standard protocol, description of how the tests were performed
    - Method of determining operating conditions

House Characteristics:

- Location (city, state or zip code at minimum)
- Date built (year at minimum, month preferred)
- Number of stories
- Conditioned floor area
- Conditioned volume
- Average ceiling height
- Building height
- Envelope surface area (optional, include if SLA [surface leakage area] reported)
- House terrain and shielding
- Is the house part of an energy efficient construction program? Which one?

Envelope Leakage and Infiltration Characteristics

- Date measured (year at minimum, month preferred)
- Blower door manufacturer and model number
- Calculated leakage value (ELA at 4 Pa, ELA at 10 Pa, SLA, NL, NLA, ACH50, CFM50, CFM25, or ACH_natural [include conversion factor])
- Test coefficients (n, C, R^2, relative standard error)
- Raw data
    - Envelope pressure difference with blower door off or sealed
    - Pressure / flow pairs
    - Blower door ring number or number of holes covered
    - Wind speed
    - Inside and outside temperatures

Duct Leakage Characteristics:

- Date measured (year, at minimum; month preferred)
- Measurement type (duct depressurization, house pressure test [HPT], nulling, DeltaQ, IQ+ [Irvine Quality+], etc.)
- Duct leakage (supply [cfm25], return [cfm25], total [cfm25], supply to outside [cfm25], return to outside [cfm25], total to outside [cfm25])
- System fan flow (cfm) (measured? nameplate data?)
- System operating pressure differences (supply, plenum, return)
- Duct system characteristics (number of supply registers, number of return registers, supply duct area, return duct area, duct location distribution (attic, basement, etc.)
- Wind speed
- Raw data (specific to test type)

HVAC System Characteristics:

- Heating system:
    - Type (gas, electric, heat pump, etc.)

  - Rated input capacity and steady state efficiency
  - Model numbers
  - Vent type (condensing, natural vent, power vented, etc.)
- Cooling system:
  - Type (electric, heat pump, evaporative, window units, etc.)
  - Model numbers, cooling system capacity and SEER/EER/COP
  - Refrigerant charge data
  - Location of HVAC system (attic, basement, crawlspace, garage, conditioned space, etc.)
- Water heater type (gas, electric, heat pump; venting type, etc.)